

TEACHING EXCELLENCE

What Do the Best University Teachers Do?

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Learning rarely, if ever, occurs passively

Introduction

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Issues

What do excellent teachers know and understand?

What effect should courses have on students?

How do motivations affect student learning?

How will you determine that learning is happening?

What do excellent teachers know and understand?

They:

Have a profound, current knowledge of their subject

Conduct continuous research in their field or related

Have an intuitive understanding of human learning

Have an understanding of student motivation

Understand the proper use of assessments/exams

Characteristics of Great Teachers

1. Teach with a conversational quality. Implies confidence and competence.
2. Use the whole body to make sure the message gets across. Voice, gesture, movement, expression, etc.
3. Have good, strong intentions. Know what you want to do and drive yourself with that intention.
4. Do not just try to transfer information. Help learners struggle with ideas so they can construct their understanding.

Teaching-Research Relationship

"Influence the way people think, act, behave."

This is the goal of excellent research

This is the goal of excellent teaching

The only difference is in who the audience is.

Good research is conceptual, not just incremental.

Excellent teaching is interactive and focuses on
Critical Thinking

Relating To Your Students

TRUST:

Trust in their ability to achieve

Trust the interest of the

OPENNESS: Learn

Talk about your own personal journey

Discuss secrets you have learned.

Listen to theirs.

DECENCY:

Treat students with decency

and respect

WE TEACH A STUDENT, NOT A CLASS.

STUDENTS JUST HAPPEN TO BE IN ONE PLACE.

Best vs Mediocre

The Best Teachers:

Expect a great deal more from their students

- The “more” they expect has a marked significance beyond
the base requirements of the course itself

Do not “pile it on”

Exhibit faith and confidence in the students; the relationship factor.

Assume learning has little meaning unless it produces a sustained and substantial influence on the way people think

Best vs Mediocre: Cont

The Mediocre or average teachers:

Focus largely on information transfer

Act as if their primary motivation is to have a sense of control over the student. They are the font of all knowledge

Satisfied as long as students get good grades

Tend to emphasize minutiae on exams, not assess

Ineffective Teaching

Emphasizes the delivery of information to the exclusion of all other teaching activities

Insists the students must remember large chunks of information, often minutiae, for examinations

Seldom includes an expectation that students reason

Employs examinations which test for fact recall, often on multiple-choice tests.

Often assess only once, at end of course

Student Motivation

Student Motivation

Motivation is either intrinsic or extrinsic

Intrinsic: A personal motivation to do or learn something independent of external influence

Extrinsic: An external motivation -- reward or punishment, offered to someone to do, or continue doing, something

Effect of Extrinsic Motivation

When a person intrinsically motivated is offered extrinsic motivation, control shifts from self to the external motivator.

When the extrinsic motivation is removed, the intrinsic motivation does not return. Once control is removed, interest in that which was controlled is diminished.

When a student is extrinsically motivated, such as by grades, the interest shifts from learning to getting good grades.

Motivation and Performance

Researchers have found that performance - not just motivation - can decrease when subjects feel manipulated by external rewards and punishments

Students who feel they are being manipulated will not work as hard as when they feel in control of their education. They do not solve problems as effectively nor reason as logically.

Students who feel manipulated usually opt for easier problems or less challenging assignments

Some Self-motivations

Sometimes students are affected by how they perceive themselves

- Helpless: Although they would not use this specific term, students with this orientation lack confidence in their abilities and are easily frustrated by challenging tasks.
- Mastery: Students with this orientation believe that they can become more intelligent by learning more, and strongly believe that they can do so.

The Connections

Research shows:

Students with a helplessness orientation are more likely to have Performance Goals, and vice versa.

They are afraid to make mistakes because they want perfection, to get the “right” answer, in order to impress others.

Often calculate

Students with a mastery orientation have how much they need to achieve praise and learning goals. Risk no more.

The goal is increasing competence so they may actually be high achievers by some standards, but seek

They desire greater competence, not praise. 16 above all else external praise.

Implications: Cont.

Excellent teachers avoided extrinsic motivators and fostered intrinsic motivation. They did not grade on the curve. Gave everyone the opportunity to excel. Gave students as much control as possible over their own learning.

Excellent teachers focused on knowledge and achievement by the end of the course, not necessarily on average scores shown over the course.

In Richard Light's research at Harvard, he found that courses students rated most highly had "high demands" and also "plenty of opportunity to revise and improve".

How Can We Make Extrinsic Motivation Positive?

Motivate on the basis of

relevance

Be enthusiastic. Your enthusiasm will be contagious.

Give good feedback effectively, frequently and sufficient advance of a critical assessment

Give students the opportunity to DO what they are learning.

Determine well in advance how you and the student will both know when proper learning is taking place. Do not require learning to be instantaneous.

Mental Models

Mental Models

What are they?

How do we identify them?

How should we deal with them to enhance student learning?

Mental Models: Cont.

A person's model of truth on a given topic

A paradigm helping us deal with life

The way we respond to things without seeing everything as brand new or unique

Stereotypes are a form of mental model. They allow us to respond to another person without having to relate to them as an individual

Responses to New Experience

Students have one of three fundamental responses to new information

1. The new information is integrated into the existing mental model
2. It does not integrate and is therefore rejected and treated as an aberration or a unique case
3. The student's mental model is changed and the information is integrated into the new mental model

Two Necessary Conditions

Two necessary conditions for changing student mental models

1. Teachers must create an “***expectation failure***”. That is, putting the student in a situation where the mental model will not work.
2. Students have to care that their existing mental model will not work. They have to care enough to rebuild the new model. It is our task to help them care enough.

We must constantly challenge paradigms in a way that the student care.

What causes learning?

Providing new facts does not, in itself, cause learning, nor
does it change a mental model

Real learning happens when the learner's mental model is either affirmed or ~~altered~~ **Conclus** Often happens ~~over time~~ students **ion** change their existing mental model is very difficult. Every challenge is initially seen as an aberration so the model can remain intact. The challenge of every excellent teacher and the objective of every course is to lead students to ~~modif~~ incorrect mental models through expectation failures

Two Questions to Ask Yourself

1. How do I find out what mental models my students bring with them about my subject?

2. What can I do to address or challenge the models so the models change the way I want them to change?

Note: People do not want to reflect on their paradigms because paradigms work for them and they do not want to change.

Dealing with Mental Models

What is the student's paradigm or mental model? Why has this model been adopted?

Why does it matter to change the mental model?

(Because of what the model does to their life and the life of those they relate to.)
The Epiphany experience has to be theirs, not something

we just give them. Therefore, make the challenge subtle.

Students begin to extract, integrate, and change their model
over time.
What will the outcome be? What outcome do I want?

Designing The Course With The Student in Mind

Course Objective

Do not focus on whether students can pass exams

Focus on whether their education has a sustainable, substantial, and positive influence on the way they think, act and feel after they graduate

Otherwise, when class is over they quickly forget much of what they were exposed to

Course Design

Each course should change the way the student thinks about the subject

Course design recognizes existing student mental models

Course challenge is to challenge the student's existing model; to create expectation failures.

Course Design: Cont.

When we can successfully stimulate students to ask their own questions, we are laying the foundation for learning.

We define the questions that our course will help them answer, BUT

we want them to develop their own set of rich and important questions about our discipline and subject matter.

Knowledge Integration

Even when some conceptual understanding is gained in a field, students are often unable to link that knowledge to

~~Integration will not happen unless the course is designed for integrated critical thinking.~~

Knowledge is not given or transferred by the teacher; it is constructed by the student.

Your Expectations

What do you expect from the students?

Ask the students to do a self-analysis about their own thinking (not just knowledge)

Ask students to make an argument about their thinking with reference to the level of their thinking

Can they recognize when their thinking needs repair?

Your Expectations: Cont.

Help students become better writers

Form students into heterogeneous collaboration groups

Identify and communicate the criteria for good writing

Identify the criteria for acceptance among the knowledgeable peers of the community into which they are trying to move

Help students learn the logic of your discipline

What Will I Teach?

The body of knowledge in your subject is vast. You can't cover it all.

You must decide what in the body of knowledge should be included in this course, and why.

You must choose the content and then show the student that content is relevant to the course objective.

The student always has the right to ask: W G A D

Teach The Logic Of Your Discipline

How do scholars in your field reason from evidence?

What concepts do they employ?

What assumptions do they make?

What implications do their conclusions have?

How does it open doors to the critical dialogues and key

arguments in which scholars on the cutting

Teach the Knowledge Base

The Knowledge Base is the fundamental knowledge upon which the rest of the subject knowledge is built.

Teach the knowledge base, not the minutiae.

Communicate the knowledge base over and over in different contexts. This way the student recognizes the knowledge base when it is contextually encountered, regardless of setting.

We have the knowledge base; the student does not.

Teach the Knowledge Base: Cont.

Our task is to help the student construct the knowledge base, and that is always contextual.

The knowledge base becomes their desired mental model of the given discipline.

They build additional information onto, and integrate it into, the knowledge base we provide them. This carries after they leave. Otherwise, they forget what they learned.

Teach the Knowledge Base: Cont-2

Focus on the big questions in your discipline

This hooks the students

This leads to and fosters intrinsic motivation by allowing the students to generate subordinate questions on the

Test To The Knowledge Base

If you focus on intellectual development, and work on construction of the knowledge base, then

Test to the knowledge base, not the minutiae.

Use cumulative exams to help the student learn

in a non-threatening way
Higher order learning is development of reasoning skill, not memorizing facts.

Preparing To Teach

How do you prepare to teach a class, especially a new one?
What do you ask yourself when you prepare to teach?

1. What do you expect your students to be able to do intellectually, physically or emotionally as a result of taking your course?
2. What questions will the course or lesson help them answer, or what abilities will it help them develop?

Preparing to teach: Cont.

3. What information will my students need to answer my questions? How will they get that information?
4. How will I help students having difficulty understanding the questions, using the evidence and reasoning to an answer?
5. What writing will I give them to help them grapple with the significant issues and concepts?
6. How will I confront students with conflicting problems and encourage them to grapple collaboratively with them? How will I point out what they expect from my teaching? How will I reconcile any differences?

Preparing to teach: Cont-2

8. How will I get students to ask good questions, and will I create learning that follows their questions?
9. How will I help students examine and assess their own thinking?
10. How will I find out how they are learning before I formally assess them? Communicate with them in a way that keeps them thinking?
12. How will I develop their thinking in a non-threatening environment?

Preparing to teach: Cont-3

13. How will I explicitly explain the intellectual and professional standards I will use to assess their work?
14. How will I help students assess their own work against those standards?
15. How will I know students are able to do what I want them to do intellectually?
16. How will I create learning and avoid mere memorization?

Preparing to Teach: Cont-

4

Retrace your own intellectual journey.

Recapture the big questions under which your course will fit. Write them down:

How much does your discipline play in the management

~~success of the programs our students manage?~~
How much does the student have to know about your topic

~~to make effective acquisition decisions?~~
What reasoning abilities will the student need? Why?

(Analysis, synthesis, integration, cause-effect)

What Level To Teach To

All of the outstanding teachers studied had the highest level of learning in mind when they designed their courses.

Less effective teachers focused on teaching facts, directing their efforts at the lower levels of learning.

Excellent teachers emphasize the search for answers to the most important questions. They encourage students to use a variety of methods, from different fields, to solve complex problems.

Excellent teachers emphasize the intellectual and ethical development of their students.

Learning Environment

The best teachers create a natural learning environment in which they embed skills and information they wish to teach into assignments students will find fascinating

They use tasks which arouse curiosity and challenge students to rethink assumptions and examine mental models of reality

They know they can provide information, but the student has to construct the knowledge. They never expect students to accept received knowledge uncritically

Learning Environment: Cont.

The best teachers seemed almost incapable of imagining their students could not think and act on the highest level.

Many of the best teachers avoided timed tests, gave take-home exams, or gave students as much time as needed to finish an exam. Very few took points off for late papers.

Discussions on how well students were doing never focused on points (grades) but rather on the intellectual abilities students were trying to develop or refine.

Creating a Natural Learning Env.

5 Critical elements:

- raise questions – pose problems
- help student buy into significance of the question/problem
- engage student in collaborative problem solving – sees group as opportunity, not just an obligation
- provide opportunity for at least a tentative solution
- leave them with a question

Creating a Natural Learning Env.

Design assignments that:

- Are intrinsically motivating and interesting
- Are organized around the learners goals
- Involve learning by doing, and learning by failing
- Help student learn how to use specific reasoning skills
- Tell you and the student if they are learning to reason in discipline

Natural Environment: Cont.

Determine in advance what students should be able to intellectually, AS A RESULT OF THE ASSIGNMENT.
What question will it help them answer?

If you don't know, don't give the assignment.

Student Intellectual Development

Learning is an evolutionary process of development combining acquisition of facts and integration into the knowledge base.

De-emphasize the importance of grades. Focus on Learning not grades.

No grading on the curve. Student has control of his or her grade, not you. They get what they earn.

Give challenging exams. Take students to the heights of learning, but be at their side every step. Invest yourself in their learning success.

Intellectual Development: Cont.

Foster interdependence in the classroom.

Encourage collaboration

Encourage study
groups

What is purpose of the class? To give grades or people learn?

Match level of learning to the learning objectives.

Student Personal Development

Treat students with interest and respect, as individuals

Help develop their higher order reasoning. Students need to know facts, but also what to do with those facts.

Use every opportunity to stimulate personal development

Take time every now and then to focus on their personal development issues, even if not directly related to the matter of your discipline.

Go Do The Right Thing

Focus on a contextual framework for learning. In this way the student learns intuitively why something is important.

Effective teaching is about your **relationship** with the students, not using high tech.

Do not use Powerpoint for everything; only for what makes sense.

Varying your technique works because the brain likes variety.

First Day Activities

Lay out the course as a series of promises of what they will learn

Discuss the skills the course will help the student develop

Let them know exactly how they will be assessed

Relating to the Student

Ask questions in a way that engages the student and evokes learning: Be cognizant of the mental model

Have students write responses

Dialogue with the student about their responses

Then discuss as a class

Ask “Why?” a lot. Helps identify the student’s mental model.

Lecture At Its Best

If the only reason for the lecture is to communicate information, give the students a book instead

Lecture is an argument, with evidence and conclusion

It illustrates an educated mind reasoning within a discipline

It is interaction to encourage students to confront problems

It keeps the students involved

It is a conversation, not a performance

Lecture At Is Best: Cont.

Many of the best teachers end a lecture asking the students to write down answers to 2 questions:

1. What major conclusions did you draw from today's lecture?
2. What questions remain in your mind?

Highly Effective Lectures

Highly effective lectures have five elements:

1. Begin with a question. State it simply.
Maybe use a story.
2. Help students understand significance of the question.
3. Ask students to do something besides listen.
Make this
 implicit or explicit.
4. Answer the question. Make the argument.
5. Leave the student with a question: Where

Highly Effective Lectures: Cont.

Put the most important material in the first 15-20 min

Excessive detail in the lecture can interfere with learning
the central points

Lectures that clarify and simplify subject complexities
introduce them gradually, produce greater learning than
lectures that attempt to impress students with the level of
sophistication and learning of the lecturer.

Leave enough time at the end for summarization and

7 Deadly Sins of Poor Lectures

1. Cover the field. Cram in as much as time allows.
2. Speak rapidly in one tone. Don't stop.
3. Read from your notes.
4. Talk to the board. Keep your back to the students.
5. Never entertain questions.
6. Try to impress students with your knowledge

Using Cases Effectively

Cases can be very effective learning vehicles

Cases are not merely situations to discuss. They are designed to change the way the student thinks.

Design and use cases to develop the student's reasoning ability so the desired conclusion is reached
Recognize the argument supporting the conclusion in the scholarship found in the case discussion

Assessments: Testing and Evaluations

What Would You Do?

The best teachers embed the desired skills into the questions, tasks, and assignments given in class.

They use goal-based scenarios and problem based learning.
What is the norm? What is deviant? Why is it deviant?
By how much?

How would you design an assignment in your area, that will be fascinating to the students, to help them learn desired skills by doing?

Evaluation and Assessment

1. How will I know my students can do what the course promises they will be able to do?
2. How can I use student performances to improve my teaching?
3. How can I help students learn to use the criterion or discipline to assess the quality of their own thinking?

Suggestion: Read ***The Hidden Curriculum*** by Sheila

EXAMS

Use problems requiring them to use the logic of the discipline rather than have them

memorize facts

Test the knowledge base, not the minutiae

Strive to create a sustained positive influence on the student's performance

Consider cumulative and comprehensive exams. It demonstrates integration of knowledge. As subject knowledge increases, is knowledge being integrated?

Exams: Cont.

Question for us: Since real learning is integration of new knowledge into an existing, possibly changing, mental model, does it make more sense to have a few integrated exams for our courses rather than one or two individual subject matter exams?

If we do, we cannot make any permanent decisions about a given student until the end of the course because the knowledge integration and the mental model changes likely take place over time, not immediately.

Should You Use The Bell?

Never grade on a bell curve. It insults the student.

If you teach excellently, and they learn excellently, there is no reason why every person in the class should not get A.
Bell curve distributions are a meaningless crutch when grading students. Administrators try to force it to avoid the appearance of grade inflation.

Using The Bell: Cont.

The only way to get a bell curve distribution in the grades is to place a significant focus on minutiae, not knowledge base. This means a focus on what is trivial on what is important.

Think about what a bell curve distribution implies:

Random

selection and distribution of the population. The norm is in

the middle. Beyond the norm is considered error.

If you teach

excellently, and learning is excellent, that is error,
not the

result of good teaching. “C” is the ideal

Backup Slides on Teaching Tech

Teaching Tech: Cont.

Technical subjects are in a pedagogical crisis:
We often teach to the test rather than for understanding

Critical Thinking: Formalized common sense

In mathematics, we often teach equations, not common sense

Get students to a level of learning where they can explain what they learn to someone who was not there. If they cannot do this, the right learning did not happen.

Teaching Tech: Cont. 2

Focus teaching on technical concepts, not details.

Once concepts are understood, let students fill in the details for themselves.

Raise the confidence level of the students. Never embarrass the student.

Make your subject personal for each student.